

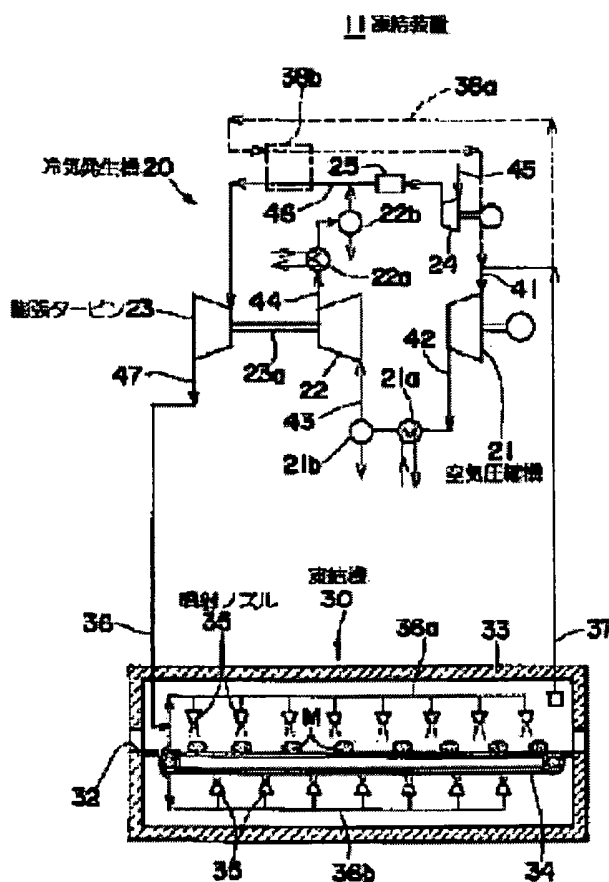
## FREEZING METHOD AND DEVICE

**Patent number:** JP10267444  
**Publication date:** 1998-10-09  
**Inventor:** AKASAKA AKIRA; IKEDA MAKOTO  
**Applicant:** NIPPON OXYGEN CO LTD  
**Classification:**  
 - international: **F25D1/00; A23L3/36; F25B9/00; F25D1/00; A23L3/36; F25B9/00;** (IPC1-7): F25B9/00; F25D1/00  
 - european:  
**Application number:** JP19970067936 19970321  
**Priority number(s):** JP19970067936 19970321

Report a data error here

### Abstract of JP10267444

**PROBLEM TO BE SOLVED:** To perform high-efficient freezing of a substance to be frozen and to shorten a freezing time by a method wherein cold air generated by a cold air generator to generate cold through heat insulation and expansion of compressed air is fed to a freezer, and direct injection is effected on the substance to be frozen through an injection nozzle to freeze the substance to be frozen. **SOLUTION:** When freezing of a frozen food is effected, after hot air recovered by a hot air recovery route 37 is compressed by an air compressor 21, cooling is effected by a cooler 21a, further boosting is effected by a booster compressor 22 and cooling is effected by a cooler 22a. Meanwhile, after in an auxiliary air compressor 24, the atmosphere is compressed and cooled by a cooler, the atmosphere is dried by a drier 25. Boosting air from a drain separator 22b and auxiliary air from the drier 25 are confluent to each other and heat-insulated and expanded by an expansion turbine 23 and outputted as cold air having temperature of approximate -80 deg.C. The cold air is fed to a freezer 30 at own pressure from a cold air generator 20 through a cold air feed route 36, and injected against a frozen food M through injection nozzles 35... in a heat insulation tunnel 33.



Data supplied from the esp@cenet database - Worldwide